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BRYN MAWR COLLEGE awards annually three traveling fellowships. One of these has just been awarded to Miss Margaret Hamilton in natural science and one to Miss E. N. Martin in mathematics.

MR. ARTHUR H. PIERCE, Kellogg fellow of Amherst College, has begun a course of lectures on psychology at the College. The Kellogg fellowship is the most valuable in the gift of any American university. The income of \$30,000 is given to the holder for seven years, part of the time to be spent in study abroad, and part in residence at Amherst with certain duties as lecturer.

THE New York *Evening Post* reports that the museum of economic geology of New York University has received a full series of specimens illustrating the coal beds in the several anthracite basins. Series exhibiting the peculiarities of the ores and enclosing rocks have been sent by the officers of eleven important mines in Montana, Nevada, Utah, Colorado and Arizona, and similar series have been received from several of the more celebrated iron mines. The department of geology has been assigned for the present the south end of the new museum, which is approaching completion. It has a length of between eighty and ninety feet, and a width of over thirty-five feet, and will comprise three sections, namely, the museum section, the laboratory section and the classroom section. The space in the temporary building now occupied by geology will be given to the department of biology.

AN attempt is being made to secure funds for the endowment of a professorship in agriculture and forestry at the University of Cambridge. During the present year a short course of lectures on the practice and science of agriculture have been given by Professor Somerville, of the Durham College of Science.

A DESPATCH to the London *Times* from St. Petersburg says that more than a thousand students of the University and other institutions have been arrested at the very doors of the Cathedral of Our Lady of Kazan. They were endeavoring to attend prayers said for the soul of a girl student named Vitroff, who, it is alleged, set fire to her blanket and burned her-

self to death in her prison cell, to escape the insults and violence of a prison official. She had been imprisoned since December, on the charge of being a political agitator.

DR. CLASSEN, of the Polytechnic Institute at Aachen, has been appointed professor of chemistry in the University at Kiel; Dr. A. Palladin, professor of plant anatomy and physiology at the University of Warsaw, and Dr. de Vries, docent at the Polytechnic Institute at Delft, professor of geometry in the University of Utrecht. Dr. W. Beneke has qualified as docent in botany in the University of Strasburg.

DISCUSSION AND CORRESPONDENCE.

THE FORMER EXTENSION OF ICE IN GREENLAND.

SINCE the facts in the case will soon be published there might seem to be no especial need of continuing this discussion, but I do not feel that I should leave it while Professor Chamberlin is insisting that I have misinterpreted him. It is *not* a question whether he thought the Upper Nugsuak region had been glaciated, but upon what evidence he has drawn his sweeping conclusion that 'the ice fell short' of half the Greenland coast in a distance of a thousand miles. It would be of interest to know more exactly where the half is, but that is not the point. This conclusion is certainly based upon angular topography, mainly seen from a vessel.

My contention is that this class of evidence by itself is of *no value*, and in proof of this I point out that distinctly angular peaks have been glaciated and, moreover, that one of the most angular now rises in the midst of the Cornell glacier. I have not seen a thousand miles of the Greenland coast, but have seen nearly half that, including the island of Disco, the Waigat Strait and Umenak Fjord. Nowhere in all this distance did I see more rugged topography than that of the Upper Nugsuak peninsula region, *as viewed from the sea*. Professor Chamberlin thinks that the topography on this peninsula is the partly subdued, not the entirely unsubdued upon which he bases his generalization. It would require much more delicately made observations than any of our party was able to make to detect this difference.

The prediction is made by Professor Cham-

berlin that when pronounced upon by 'experts' in glacial topography, there will be seen to be a difference between the two types as illustrated by the photographs. If so, it should be a requisite that such an expert should have been to the top of some of the unsubdued peaks to prove that they have not been glaciated. The mere conclusion based upon a conception of what seems probable should not suffice. I know for my own part that until I got to the top of some of the high peaks on the Upper Nugsuak I could not believe they had been ice-covered; yet I found that the ice had not only covered them, but had extended at least twenty miles further. From my studies the conclusion was forced upon me that isolated peaks, as well as those rising well above the general level, may be glaciated for a long time and still remain very angular.

I am not engaged in an 'attempt' to place Professor Chamberlin in error, as he states, but intend to point out what I believe is an error of judgment. What glacial geology needs above all other things at present is a greater body of fact upon which to base our conclusions. We now have the fact that many parts of the Greenland coast are angular; we have the further fact that a region of angular topography has been glaciated. It is the *truth* that we wish to see discovered, whether this proves that all of Greenland has been glaciated or only a part; but until more facts are obtained I hold that Professor Chamberlin's conclusion that the ice did not extend into the heart of Baffin's Bay is based upon evidence of such a questionable nature that it ought not to be accepted. I, therefore, say again, let us get facts and trust more in them than in 'expert judgment.' When this is done glacial geology will have a better reputation.

R. S. TARR.

CORNELL UNIVERSITY.

So long as Professor Tarr continues to insist that a glaciated and a partially subdued topography cannot be distinguished by its contours, although his own observations show the discriminations of two observers, on separate trips, to have been essentially correct, and so long as he persists in calling a topography unqualifiedly angular which these observers have

distinguished from the unqualifiedly angular, it seems idle to continue to discuss the subject. In pursuance of his urgency of the importance of fact and truth and better methods in glaciology there is but one defense which he can properly make, and that is to publish in SCIENCE, whose readers he seeks to influence, the photographs which accompany his Washington paper. Glacialists will then be able to judge for themselves whether glaciation is or is not indicated by the topography.

T. C. CHAMBERLIN.

HISTORY OF ELEMENTARY MATHEMATICS.

IN Professor Blake's appreciative review of my 'History of Elementary Mathematics' there are two or three statements which appear to me open to objection. It must be admitted that, if the logarithm of x be defined by the relation $x = b^{10^x}$, b being constant, then, strictly speaking, Napier's numbers are not logarithms. It is the knowledge of this fact which led me to write in my history (p. 160): "In determining, therefore, what the base of Napier's system would have been, we must divide each term in the geometric and arithmetic series by 10^7 ." In the light of this remark, my statement that the base 'demanded by his [Napier's] reasoning is the reciprocal of that of the natural system' seems correct. The real question raised by Professor Blake's criticism is this: In considering the matter of a base, what is the best method of describing the nature of Napier's logarithms to a modern student? My claim is that the method of dividing each of Napier's numbers and logarithms by 10^7 and then finding the *fixed* base—a method which I followed in imitation of W. R. MacDonald, M. Marie and others—is more readily grasped by the elementary student than the one involving the difficult notion of a *variable* base, suggested by Hagen and Blake.

The sentence ' $\sqrt{2}$ cannot be exactly represented by any number whatever' is correct from the Greek point of view, for on page 29 I say that 'by the Greeks irrationals were not classified as numbers.'

I am unable to find anything on page 74 which would 'lead one to suppose that rigor demands our ability to construct' * * * every in-